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Certified by



Jon W Dudas

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17264 U.S. PTO



PROVISIONAL APPLICATION COVER SHEET

06/24/03
This is a request for filing a PROVISIONAL APPLICATION under 37 CFR 1.53(b)(2).

Docket Number STRAK-505

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17363 U.S. PTO

60/480980



06/24/03

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TITLE OF THE INVENTION (280 CHARACTERS MAX)

METHOD FOR USING WIRELESS CONTROL FOR CREATION OF AND COMMAND
RESPONSE TO STANDARD FREIGHT SHIPMENT MESSAGES

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ENCLOSED APPLICATION PARTS (check all that apply)

☒ Specification Number of Pages: 4 ☒ Small Entity Statement
☒ Drawing(s) Number of Sheets: 3 ☐ Other (specify) _____
APPLICANT IS A SMALL ENTITY

Method of payment (check one)

- ☐ A check or money order is enclosed to cover the Provisional filing fees.
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Provisional Filing Fee Amount: \$ 80.00 **APPLICANT IS A SMALL ENTITY**

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

☒ No.

☐ Yes, the name of the U.S. Government agency and the Government contract number _____

Respectfully submitted,

Signature

Leo Stanger

Date:

6/24/03

☐ Additional inventors are being named on separately numbered sheets attached hereto.

METHOD FOR USING WIRELESS CONTROL FOR CREATION OF AND COMMAND RESPONSE TO STANDARD FREIGHT SHIPMENT MESSAGES

This invention utilizes wireless intelligence on a freight asset to evaluate status conditions that automatically trigger transmissions and generate industry standard freight industry messages, which may be used for tracking and monitoring of freight assets and shipments. A corollary of the invention utilizes industry standard freight shipment messages that are evaluated against wireless messages transmitted from a freight asset with wireless intelligence to send command actions to the asset, which change or alter a monitored freight condition. Another corollary involves a method that permits a user to create an industry standard freight message by sending a wireless notification to an asset, which would respond to the notification with a wireless transmission, resulting in an industry standard freight message.

A basic embodiment of the invention appears in Fig. 1.

The specialized aspect of this invention involves a specialized condition of a freight asset, monitored in real-time, which creates an alarm or event condition within an intelligent electronic device on an asset, by virtue of the intelligence of that device. The alarm or event condition is sent via wireless communications to a database application, which formats the message into a standard Electronic Data Exchange (EDI) or Extensible Markup Language (XML) message containing relevant information for the asset, and transmits the message to users with information systems that accommodate the standard message types. This process permits the intelligence of the monitoring system on the asset to

transmit standard, "open systems" messages, which are delivered into the existing information systems of users of freight equipment. This invention is unique as the device on the asset automatically evaluates a condition appropriate to provide information that is normally derived from other sources (i.e. wayside monitoring systems that tell when an asset passes by and human creation of events that occur at under specific conditions). One example of this process would involve the local knowledge of location of the asset, by use of a geographic positioning system (gps) sensor or equivalent, when the asset moved into a user designated location, where the asset would generate a wireless message, formatted into an industry standard message for delivery into an information system. The newly formatted message would contain information delivered from the asset, including for example, gps location, time of arrival or departure, and the condition of the freight (door position, temperature, set point temperature, presence of auxiliary equipment, etc.). A second example of this process would involve a laborer changing the temperature set point on a refrigerated trailer or railcar, which generates a wireless message ultimately delivering a standard industry message to the user. With these given messages, the user may compare the wireless generated information from equipment located on the asset to shipping records, providing immediate context to the shipment without the need for local reading devices or operator inputs.

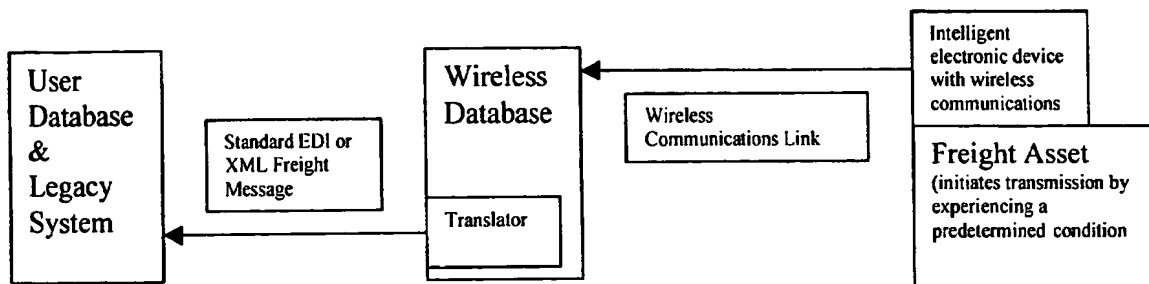
Another embodiment appears in Figs. 2 and 3. This involves the generation of a wireless command to the asset to change a condition based on a discrepancy between an industry standard freight message and information transmitted from a freight asset using wireless communications. Upon the receipt of an industry standard freight message generated by

the user specific to an individual freight asset, the database would compare recent wireless messages to the newly received freight message. Should an exception occur resulting from a discrepancy between the originating message, which would involve a specification for the freight shipment, such as a destination, temperature setting, routing violation, and recent wireless messages, then the database would send a wireless command to an intelligent electronic device on the asset, which would change the condition of the asset. In one example, if a user sent an industry standard freight message specifying a specific temperature setting for a commodity contained within a specific freight asset, and the temperature setting were compared to a recently received actual temperature setting received via wireless communications, then an automatic command would be sent to the intelligent electronic device instructing it to change the temperature set point to the prescribed temperature setting. Upon enacting the change in temperature, the electronic device would send a wireless message confirming that the action took place, which would in turn be forwarded in an industry standard freight message in accordance with the invention. Another example would involve the automatic sending of a command to a unit to lock the freight doors once the asset has left a prescribed location delivered to the database via an industry standard message.

Yet another embodiment appears in Figs. 4 and 5. This involves a method to create a standard freight industry message by accessing a database and sending a command via wireless communications to an intelligent device attached to a freight asset. Upon receipt of the command from the user, the intelligent device would create a transmission

that would result in an industry standard freight message in a method similar to the embodiments above.

In these embodiments, the standard freight messages would involve, for example, bills of lading (404), waybills (417), Terminal Operations and Intermodal Ramp Activity (322) messages and car location messages, which contain relevant information about freight shipments. These messages, and related messages, would be created from wireless messages via satellite, cellular or radio frequency communications in the first embodiment. In an embodiment, these messages, and related messages, would be used to specify the actual conditions of the freight, and the wireless communications links would be used to assure via control mechanisms, that the freight shipment meets the specification.



Basic Invention:
User Notification

Freight Condition Changes
(geofence location, temperature change, unlocked door)

FIG. 1

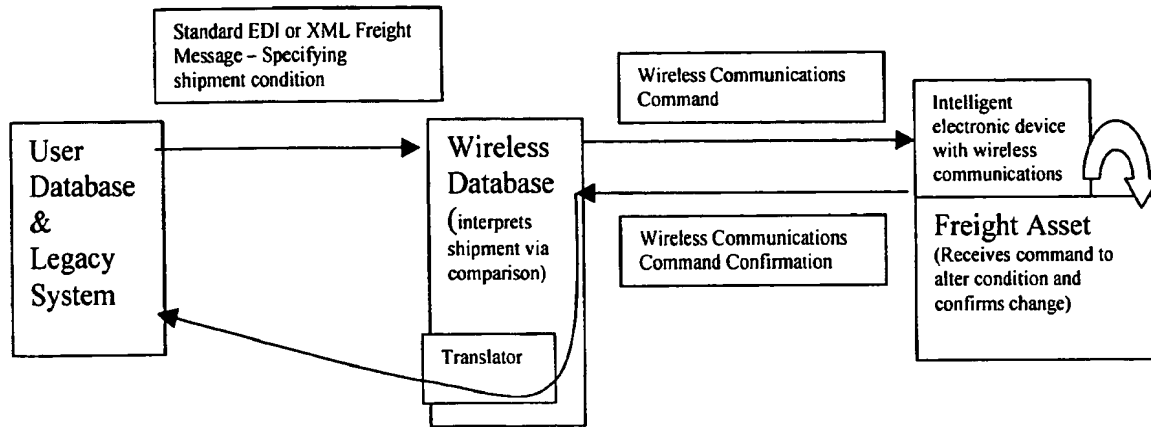


FIG. 2

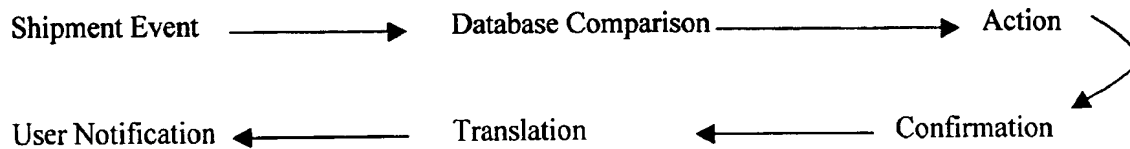


FIG. 3

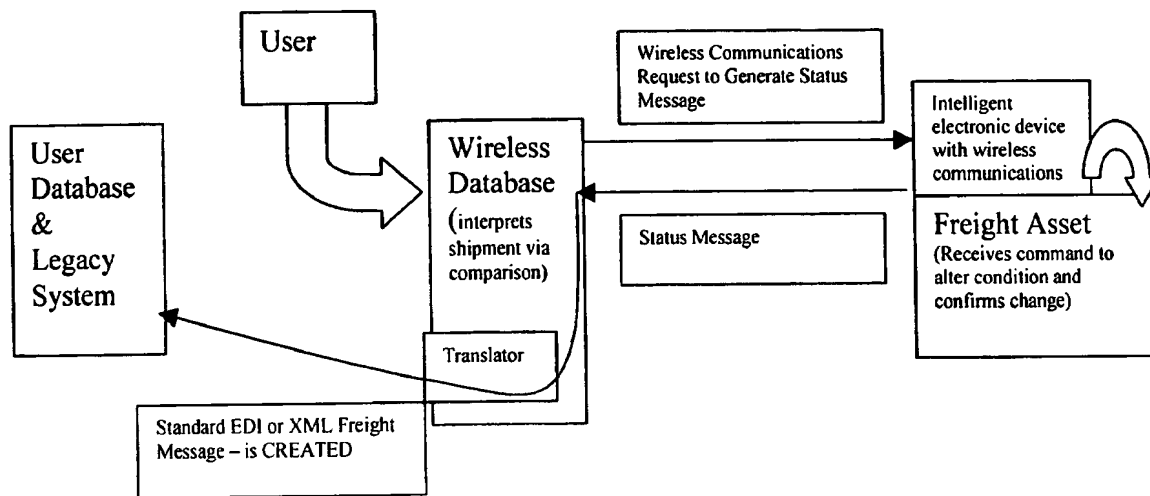


FIG. 4

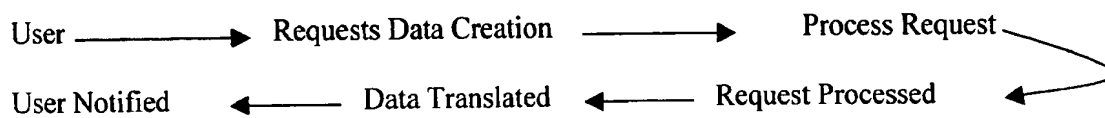


FIG. 5

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